

## SENSOR WITH IMPROVED SELF-PINNED STRUCTURE

### ABSTRACT

A magnetic head having an antiparallel (AP) pinned layer structure having at least two pinned layers with magnetic moments that are self-pinned antiparallel to each other. The pinned layers are separated by an AP coupling layer. A bias layer with a pinned magnetic moment is spaced apart from the AP pinned layer structure. A free layer is positioned between the AP pinned layer structure and the bias layer. At least one of the pinned layers extends beyond track edges of the free layer in a direction parallel to the ABS. Optional antiferromagnetic (AFM) layers can be positioned outside the track edges of the free layer in a direction parallel to the ABS (but not necessarily aligned with the free layer). The AFM layers pin a magnetic orientation of portions of the pinned layer closest thereto that are positioned outside the track edges of the free layer.